

We claim:

1 1. A method for task manager to interact with a user and provide the user nearby information of a
2 moving object , the method comprising:
3 providing information and one or more geographic location related to the information in a
4 database used by a computer
5 receiving a request from the user which specifies search criteria for identifying information
6 desired by the user, including one or more geographic areas where the geographic
7 location of the desired information is to be located and a schedule for searching desired
8 information within the one or more geographic areas;
9 scheduling a query for the searching the desired information in a subset of the one or more
10 geographic areas, including storing the query in a computer-readable storage;
11 processing the query according to the schedule, including querying the computer to search
12 the database for information satisfying the search criteria; and
13 sending a result of the processing to the user, wherein the result identifies the information
14 satisfying the search criteria.

1 2. The method of claim 1, wherein the sending are performed over a wireless communication
2 network.

1 3. The method of claim 1, further comprising:
2 wherein the scheduling is performed in response to receiving the request from the user; and
3 wherein the query are in response to the request from the user; and
4 wherein the processing and the sending are performed in response to receiving the request from
5 the user.

- 1 4. The method of claim 1, wherein the database is geo-coded information database.
- 1 5. The method of claim 1, wherein scheduling are performed a plurality of times to search desired
2 information on multiple subsets of one or more geographic areas.
- 1 6. The method of claim 5, wherein the scheduling further comprise reducing the subset by removing
2 the overlap with the subset of other query that is scheduled to performed before the query to be
3 scheduled
- 1 7. The method of claim 1, wherein the subset is a projection of a geographic position of the moving
2 object.
- 1 8. The method of claim 7, wherein the projection is a function of one or more factors selected from
2 the following group:
3 a moving condition of the moving object;
4 a predefined travel route of the moving object;
5 a dynamic constraint;
6 a user preference;
7 a search schedule requested by user;
8 a search area criteria requested by user; and
9 a predefined search area system.

- 1 9. The method of claim 8, wherein the moving condition is selected from the following group: a
2 direction of motion, a speed of motion, an intention of direction change, and an intention of
3 speed change.
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- 1 10. The method of claim 8, wherein the dynamic constraint is selected from the following group: an
2 indication of remaining energy, a rate of energy consumption, and a resistance of movement.
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- 1 11. The method of claim 10, wherein the resistance of movement is selected from the following
2 group: a road condition, a weather condition, and a weight loading.
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- 1 12. The method of claim 7, wherein the geographic position is determined by Automatic Positioning
2 System (APS).
- 1 13. The method of claim 12, wherein the Automatic Positioning System is a Global Positioning
2 System (GPS).
- 1 14. The method of claim 12, wherein the Automatic Positioning System is a Network Positioning
2 System, wherein the location is determined via triangulation.
- 1 15. The method of claim 7, wherein the geographic position is an Automatic Location Identification
2 (ALI).
- 1 16. The method of claim 7, wherein the geographic position is position coordinates of a referencing
2 system.

1 17. The system as claimed in claim 1, wherein the scheduling defines a trigger condition of the query
2 in response to the request and the processing is performed when the trigger condition is
3 satisfied.

1 18. The system as claimed in claim 17, wherein the trigger condition is selected form the following
2 group: arriving at a time, elapsing a period of time, approaching to a distance, arriving a
3 geographic location, and entering a geographic area.

1 19. The system as claimed in claim 17, wherein the trigger condition is a function of one or more
2 factors selected from the following group:

- 3 a moving condition of the moving object,
- 4 a predefined travel route of the moving object,
- 5 a dynamic constraint,
- 6 a user preference, and
- 7 a predicted query turn-around time.

1 20. The method of claim 19, wherein the moving condition is selected from the following group: a
2 direction of motion, a speed of motion, an intention of direction change, and an intention of
3 speed change.

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1 21. The method of claim 19, wherein the dynamic constraint is selected from the following group: an
2 indication of remaining energy, a rate of energy consumption, and a resistance of movement.

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23. The method of claim 19, wherein the query turn-around time is determined by one or more of the following group: a turn-around time of previous query, a predicted data quantity ratio between the to be scheduled query and the previous query, a statistic turn-around time of previous queries, and a query turn-around time calculated from the internet routing trace information.

24. The method of claim 18, wherein the processing is to be performed a period of time before reaching the boundary of the area selected from the following group:
the subset of the one or more geographic areas of the query to be scheduled and
the subset of the one or more geographic areas of the query has been scheduled.

25. The method of claim 24, wherein the period of time is determined by a predicted query turn-around time.

26. The method of claim 18, wherein the processing is to be performed at a distance before reaching the boundary of the area selected from the following group:

- the subset of the one or more geographic areas of the query to be scheduled and
- the subset of the one or more geographic areas of the query has been scheduled.

27. The method of claim 26, wherein the distance is defined by a speed of the moving object times a predicted query turn-around time.

1 28. The method as claimed in claim 1, wherein sending the information of the result in an order that
2 is determined by the distance between the geographic location of the information to the moving
3 object.

1 29. The method as claimed in claim 1, wherein sending the information of the result in an order that
2 is determined by whether the moving object is approaching or leaving the geographic location of
3 the information of the result.

1 30. The method as claimed in claim 1, wherein the sending sends the result to a second computer
2 and the second computer presents the result audibly or visually to the user.

1 31. The method as claimed in claim 30, wherein the second computer presents the information of the
2 result in an order related to the distance between the position of said moving object and the
3 geographic location of the information of the result.

1 32. The method as claimed in claim 30, wherein the second computer presents the information of the
2 result in an order related to whether said moving object is approaching or leaving the geographic
3 location of the information of the result.

1 33. The method as claimed in claim 1, further comprising rescheduling the query when the moving
2 condition of the moving object changed.

1 34. A method for continuously searching local information comprise steps of

2 receiving one or more inputs from user;

3 parsing said one or more inputs and constructing search task, wherein said search task

4 describing a criteria of search topic and a geographic search area related to a search schedule

5 and a moving object;

6 scheduling one or more search activities according to said search task in a search task

7 database;

8 executing said one or more search activities by querying server computer according to said

9 search schedule;

10 searching a geo-coded topical database for queried said one or more search activities; and

11 transmitting search results of said searching step to client computer over wireless

12 telecommunication channel, and rescheduling or terminating said one of said one or more

13 search activities after being executed, wherein said rescheduling do said scheduling step at

14 different time, place, and environment.

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1 35. The method of claim 34, wherein said scheduling step further comprising:

2 planning the geographic search area of said search activity; and

3 determining trigger condition of said search activity.

1 36. The method of claim 35, wherein said planning step further comprising one or more of the
2 following sub-steps to decide said geographic search area of said one or more search activities:
3 getting moving condition of said moving object from moving condition subsystem;
4 retrieving predefined travel route that help predict the moving path and estimating the
5 geographic search area of said next query, and
6 getting dynamic constraint from dynamic constraint subsystem to further limit the search area.

1 37. The method of claim 36, wherein said moving condition is selected from the following group: a
2 current position, a direction of motion, a speed of motion, an intention of direction change, and
3 an intention of speed change.

1 38. The method of claim 37, wherein the current position is determined by an Automatic Positioning
2 System (APS).

1 39. The method of claim 38, wherein said automatic positioning system is a Global Positioning
2 System (GPS).

1 40. The method of claim 38, wherein said automatic positioning system is a network based
2 positioning system, wherein the location is determined via triangulation.

41. The method of claim 36, wherein said dynamic constraint is selected from the following group:
an indication of remaining energy, a rate of energy consumption, and a resistance of movement.

42. The method of claim 41, wherein said the resistance is selected from the following group: a road
condition, a weather condition, and a weight loading.

43. The method of claim 36, further comprising step of choosing said geographic search area from
predefined search area system database.

44. The method of claim 36, further comprising step of reducing the geographic search area of
previous search activity of said search task.

45. The method of claim 35, wherein said determining step further comprises one or more of the
following sub-steps:

getting moving condition of said moving object from moving condition subsystem,

getting dynamic constraint from dynamic constraint subsystem for shorten the scheduled
time or scheduled distance, and

retrieving predicted query turn-around time.

1 52. The method of claim 34, wherein the transmit order of said one or more search results are
2 determined by one or more of the following factors:

3 the relative distance between the position of said moving object and each of said one or more
4 search results, and

5 the relative direction between said moving object and each of said one or more search results.

1 53. The method of claim 34, wherein said remote computer presents said one or more search results
2 in voice or in visual.

1 54. The method of claim 34, wherein said remote computer presents said one or more search results
2 in an order depended on one or more of the following factors:

3 the relative distance between the position of said moving object and each of said one or
4 more search results, and

5 the relative direction between said moving object and each of said one or more search results

1 ⁵⁵ 53. A computer system comprising one or more computers connected to a computer network, and
2 computer instructions executed by the computer system for performing the acts in claim 1.

1 ⁵⁶ 54. A computer-readable storage medium encoded with computer instructions for performing the
2 acts in claim 1.

55. A continuous local information searching system, comprising:

- a server computer having a server transmitter,
- an informational database containing topical data and geographic data, said informational database accessed by said server computer,
- a searching task manager configured to receive a search request from user, schedule one or more search queries according to said search request, and query said server computer with said one or more search queries, said search request describing a search topic and one or more geographic areas within which said desired search topic is to be located, said one or more geographic areas relate to a moving object and said schedule, and
- a mobile computer having a mobile receiver configured to receive the result of said query from said server transmitter.

56. The system as claimed in claim 55, wherein said search query is response to said search request, including a criteria for said search topic and a subset of said one or more geographic areas where said search topic is to be located.

57. The system as claimed in claim 56, wherein said searching task manager further comprises a searching area planning subsystem to plan for said subset of one or more geographic areas of said query.

58. The system as claimed in claim 57, wherein said searching area planning subsystem determines said one or more geographic areas based on information provided from one or more supporting subsystems.

1 59. The system as claimed in claim 58, wherein said supporting subsystem is a query turn-around
2 time prediction subsystem.

1 ~~60.~~ The system as claimed in claim 58, wherein said supporting subsystem is a planned travel route
2 subsystem that provides one or more planned travel routes and determines the planned travel
3 route where the moving object is on.

1 61. The system as claimed in claim 58, wherein said supporting subsystem is a moving condition
2 subsystem that provides the movement of the moving object.

62. The system as claimed in claim 61, wherein said movement of the moving object is selected from the following group: a current position, a direction of motion, a speed of motion, and a moving signal.

1 63. The system as claimed in claim 62, wherein said moving signal is selected from the following
2 group: a direction change signal, an acceleration signal, and a deceleration signal.

64. The system as claimed in claim 63, wherein said supporting subsystem is a dynamic constraint subsystem that provides dynamic constraint information.

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- 1 65. The system as claimed in claim 64, wherein said dynamic constraint information is selected from
- 2 the following group: an indication of remaining energy, a rate of energy consumption, and a
- 3 resistance of movement.

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- 1 66. The system as claimed in claim 65, wherein said resistance is selected from the following group: a
- 2 road condition, a weather condition, and a weight loading.

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- 1 67. The system as claimed in claim 62, wherein said current position determined by an automatic
- 2 positioning system (APS).

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- 1 68. The system as claimed in claim 67, wherein said automatic positioning system is a Global
- 2 Positioning System.

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- 1 69. The system as claimed in claim 67, wherein said automatic positioning system is a network based
- 2 positioning system, wherein the location is determined via triangulation.

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- 1 70. The system as claimed in claim 56, further comprising a query synthesis subsystem for
- 2 synthesizing one or more instructions of said one or more queries.

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1 11. The system as claimed in claim 70, wherein said query synthesis subsystem further reduce said
2 subset of one or more geographic areas of the query to be scheduled by removing the
3 overlapping with the subset of one or more geographic areas of scheduled query.

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1 72. The system as claimed in claim 55, wherein said searching task manager further comprises a
2 search scheduling subsystem that provides a trigger condition for said one or more queries.

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73. The system as claimed in claim 72, wherein said trigger condition is selected from one or more of the following group: arriving at a time, elapsing a period of time, approaching to a distance, arriving a geographic location, and entering a geographic area.

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74. The system as claimed in claim 73, wherein said trigger condition is a function of one or more factors selected from the following:

- a moving condition of the moving object,
- a predefined travel route of the moving object,
- a dynamic constraint,
- a user preference, and
- a predicted query turn-around time.

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1 75. The system as claimed in claim 55, wherein the transmit order of said one or more search results
2 is determined by the distance between the position of said moving object to one of said one or
3 more search result.

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1 76. The system as claimed in claim 55, wherein the transmit order of said one or more search results
2 is determined by whether said moving object is approaching or leaving one of said one or more
3 search results.

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1 ~~7~~. The system as claimed in claim 55, wherein said remote computer presents said one or more
2 search results audibly or visually.

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1 ~~78.~~ The system as claimed in claim 77, wherein said remote computer presents said one or more
2 search results in an order related to the distance between the position of said moving object and
3 one of said one or more search result.

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~~79.~~ The system as claimed in claim 77, wherein said remote computer presents said one or more search results in an order related to whether said moving object is approaching or leaving one of said one or more search results.